

SOCIETIES
MEETINGS
DECEMBER
6th

G.W.U. ENGINEERS MONTHLY



BUY
AN EXTRA
WAR
BOND

VOL. IV NO. 1

WASHINGTON D.C. NOVEMBER, 1944

ENGINEERS POST WAR

ENGINEERS XMAS TREE THIS YEAR

The plans for the Christmas tree are as yet tentative. The tree will be sponsored by the Engineers Council. The student body, faculty and alumni are looking forward to having their traditional Christmas tree back, the first of its kind since 1940. The proposed plans for our Christmas program run about as follows: Selection, erection and wiring of Christmas Tree about Dec. 9 and 10. The Christmas program about Dec. 11, which will include Christmas carols by the Glee Club, a speech by a Dean of one of the divisions of the University, after which the Christmas tree will be officially lighted and program closed by a selection of the Glee Club.

THE FIRST UNIVERSITY
CHRISTMAS TREE



M.E.S' DISCUSS POST WAR PLANS

Humor has it that two important projects, worthy of the wholehearted support of every engineering organization and student, are now under consideration by the powers-that-be. One important project is the possibility of the introduction of graduate work in engineering in the University. In view of the fact that the majority of the military personnel and occupationally deferred civilians in Washington already have their Bachelor's Degrees, it appears reasonable that there exists an even larger demand for graduate than for undergraduate work. Not only would such an offering be of great public service, but it would

(continued on page 3)

A.S.C.E. MEETS "GRAND COULEE DAM" PROF WALTHER TO SPEAK

The next meeting of the A.S.C.E. will be on December 6, 1944. The subject will be "Grand Coulee Dam". There will be slides and a student lecture. Professor Walther will give a talk on professional engineering thinking entitled "The Second Mile". There will be refreshments after the meeting. A large turnout of A.S.C.E.'s is expected.

A.I.E.E. & A.S.M.E. JOINT MEETING MR. McDUGALD-DEC. 6

Once again an outstanding engineer is to be presented to the engineers of G.W.U., this time in the person of Mr. A. F. McDougald, Superintendent of Equipment, of the Capital Transit Co. Mr. McDougald will address the combined A.S.M.E. and A.I.E.E. societies at their regular meeting on Dec. 6.

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ENGINEERS AND PEOPLE

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SOMETHING TO FIGHT FOR

We have fought for a lot of things here in the Engineering School. We have fought against a lot of things. What we want to know is; what is the Engineering School going to fight for this year? We fought for a Lounge, and now we have one. We fought for Engineers' sweaters, and now we have them. We have fought for a place for the Engineers in the school and we have gotten pretty far there. What next?

We have fought for members of our societies, and this year we will have to carry on that fight. But surely, if we know the Engineers, there will be a fight for something. Not a fight against, but one for.

A good beginning can be found in the story on the first page.

THE NEW MECHELECIIV

The new MECHELECIIV, as seen in this edition, is what we hope you want. We still have hopes of including in each issue something of a technical nature, such as data sheets or articles.

Financial help is still needed, as well as actual physical assistance, so give us a hand whenever you can.

A.I.E.E. & A.S.M.E. Joint Meeting (continued from page 1)

1944, at 8:30 in Room D-105. The subject of his talk, "The Design of the Postwar Street-car", is one that will interest both Mechanical Engineers and Electrical Engineers. Mr. McDougald is well qualified to speak on such a subject. He is chairman of the A.T.A. Committee on Postwar Vehicle Design. The evening should prove profitable for everyone. The meeting is being held under the auspices of the A.I.E.E.

James (Jim) J. Skiles, President of the A.S.C.E., was born 29 years ago in Preston, Idaho, and attended school in Burley in the same state. He spent (profitably, we hope) one year at the U. of Idaho and two years at the Naval Academy. He's married and has two sons to his credit but his wife is now in Idaho, so watch out, girls. His list of activities is a long one. Jim is a member of Sigma Tau, Theta Tau, Engineers Council, S.A.E., in addition to his presidency of A.S.C.E. Oh, yes, he works 8 hours a day as a statistician in the Bureau of Aeronautics in the Navy Dept. A typical engineer, Jim prefers eating and sleeping above all else, but a close second to his first loves is his fondness for sports, especially skiing. Of all things his chief dislike is women. Jim's favorite drink is bourbon and ginger ale. He expects to graduate in June and then head West. The MECHELECIIV wishes Jim lots of good luck.

Dr. Arthur F. Johnson



We are glad to welcome back Dr. Johnson, of the Mechanical Engineering department, who was loaned to the Maritime Commission by the University. Dr. Johnson is an expert on Naval Architecture and was responsible for the development of the "Sea Mobile". He has in the last three years visited practically every port in the U.S. making appraisals of contracts awarded by the Maritime Commission to such men as Higgins, Kaiser and others. Dr. Johnson is more convinced than ever that this University is badly in need of graduate work in this time of national emergency.

SOCIETY SLANTS

Theta Tau

Theta Tau will have its first rush function Dec. 16 at Meadowbrook. Alumni, actives, and invited guests will be present to imbibe beer, eat hot dogs, and generally enjoy themselves.

A.S.C.E.

At the last meeting of the A.S.C.E., Bob Shapiro was elected secretary, and Haaren Miklcsfy, treasurer.

Engineers' Ball

The Annual Engineers' ball will be March 3, 1945, at Wardman Park Hotel.

Sigma Tau

The last Sigma Tau meeting was postponed because of the double meeting of the parent societies of A.I.E.E. and A.S.M.E. in the Chamber of Commerce Auditorium on "Jet Propulsion," also the open forum meeting on management, at which Dean Feiker presided.

A.I.E.E.

Dave Carlson spoke on "Industrial Induction Heating" at the last meeting. The third annual Lab dance was held on November 25.

Post War Plans

(continued from page 1)

enhance the reputation of the University Engineering School and result in financial benefits to the University. The MECHELECIV will contact each department on this subject. The M.E.'s have the following to say:

Speaking for the Mechanical Engineering department only, on graduate work, Dr. Johnson proposes the installation of a wind tunnel to investigate propeller efficiencies, airfoils, jet propulsion, and to overcome the present tendency of propellers to cavitate and vibrate. An elementary course in metallurgy to follow our present course in Materials of Construction is also proposed as well as a water tunnel to investigate "water hammer" loss of pressure in valves. Professor Cruickshanks is also interested in heat exchange and combustion phenomena in the detonation of fuels in connection with graduate work.

SEMPAL OAZE

Professor: Will you men in the back of the room please stop exchanging notes?

Student: They aren't notes, sir, they are cards....we're playing bridge.

Professor: Oh, I beg your pardon.

Engineers' Etiquette: You can't spit and expectorate. Beatrice Post

Take your foot out of the fire, Mother, You're making a fuel of yourself.

Doctor: You must avoid all forms of excitement.

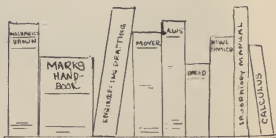
Engineer: Can I look at them on the street?

Puppy Love: The prelude to a dog's life.

A pinch of salt may be improved by dropping it in a stein of beer.

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DATA SHEET I

The MECHELECTIV, with this edition, presents these data sheets which we hope will be of some help to you. Any suggestions as to the contents you would like to have here would be appreciated. We suggest that you tear this page out and file it in a loose leaf notebook for future reference, possibly in the front of your present notebook, where you will have it handy. Address any remarks about this column to 620 23rd Street NW, Washington 7, DC.

USEFUL INFORMATION

- To find circumference of a circle multiply diameter by 3.1416.
 To find diameter of a circle multiply circumference by .31831.
 To find area of a circle multiply square of diameter by .7854.
 To find area of a triangle multiply base by $\frac{1}{2}$ perpendicular height.
 To find surface of a ball multiply square of diameter by 3.1416.
 To find solidity of a sphere multiply cube of diameter by .5236.
 To find side of an equal square multiply diameter by .8862.
 To find cubic inches in a ball multiply cube of diameter by .5236.
 To find cubic contents of a cone, multiply area of base by $\frac{1}{3}$ the altitude.

Doubling the diameter of a pipe increases its capacity four times.
 A gallon of water (U. S. standard) weighs 8 $\frac{1}{2}$ lbs. and contains 231 cubic inches.

A cubic foot of water contains 7 $\frac{1}{2}$ gallons, 1728 cubic inches, and weighs 62 $\frac{1}{2}$ lbs.

To find the pressure in pounds per square inch of a column of water multiply the height of the column in feet by .434.

Steam rising from water at its boiling point (212 degrees) has a pressure equal to the atmosphere (14.7 lbs. to the square inch).

A standard horse power: The evaporation of 30 lbs. of water per hour from a feed water temperature of 100° F. into steam at 70 lbs. gauge pressure.

To find capacity of tanks any size; given dimensions of a cylinder in inches, to find its capacity in U. S. gallons: Square the diameter, multiply by the length and by .0034.

To ascertain heating surface in tubular boilers multiply $\frac{3}{4}$ the circumference of boiler by length of boiler in inches and add to it the area of all the tubes.

One-sixth of tensile strength of plate multiplied by thickness of plate and divided by one-half the diameter of boiler gives safe working pressure for tubular boilers. For marine boilers add 20 per cent. for drilled holes.

To find the capacity of an air compressor in cubic feet of free air per minute: Multiply the area of low pressure cylinder (on compound compressor), or area of simple compressor cylinder in square inches, by the stroke in inches, and divide by 1728; and multiply this result—

- (a) In single acting, simple or compound, by the R. P. M.
 (b) Double acting, simple or compound, by 2 \times the R. P. M.
 (c) Duplex double acting, by 4 \times R. P. M.

STANDARD GAUGES

No. of Gauge or Thickness of Sheet	Approximate Thickness in Inches					Wt. per Square Foot in Lbs.	
	U. S. Standard adopted by U. S. Gov't July 1, 1903 (Revised)			Stab's or Bir-ming-ham Wire Gauge	American W. & M. & A. S. & W. Gauge	U. S. Standard Steel	Birmingham Wire Gauge
	Fractions	Inch Equivalent for Steel Sheet Thickness*	Inch Equivalent Thickness based on .2833 lb. per sq. in.	Decimals	Decimals	Decimals	Sharpe's
3				.250	.229	.2437	10 57
4				.238	.204	.2253	9 71
5				.22	.181	.2070	8 98
6				.203	.162	.1920	8 28
7	3-16	.1793	.1838	.18	.144	.1770	7 5
8	11-64	.1644	.1685	.165	.128	.1620	6 875
9	5-32	.1495	.1532	.148	.114	.1483	6 25
10	9-64	.1345	.1379	.134	.101	.1350	5 625
11	1-8	.1196	.1225	.12	.09	.1205	5
12	7-64	.1046	.1072	.109	.08	.1055	4 375
13	3-32	.0897	.0919	.095	.072	.0915	3 75
14	5-64	.0747	.0766	.083	.064	.0800	3 125
15	9-128	.0673	.0689	.072	.057	.0720	2 8125
16	1-16	.0598	.0613	.065	.05	.0625	2 5
17	9-160	.0538	.0551	.058	.045	.0540	2 25
18	1-20	.0478	.0490	.049	.04	.0475	2
19	7-160	.0418	.0429	.042	.035	.0410	1 75
20	3-80	.0359	.0368	.035	.028	.0348	1 50
21	11-320	.0329	.0337	.032	.028	.0317	1 375
22	1-32	.0299	.0306	.028	.025	.0288	1 25
23	9-320	.0269	.0276	.025	.022	.0258	1 125
24	1-40	.0239	.0245	.022	.020	.0230	1
25	7-320	.0209	.0214	.019	.017	.0204	.875
26	3-160	.0179	.0184	.018	.015	.0181	.75
27	11-640	.0164	.0169	.016	.014	.0173	.6875
28	1-64	.0149	.0153	.014	.012	.0152	.625
29	9-640	.0135	.0138	.013	.011	.0150	.5625
30	1-80	.0120	.0123	.012	.01	.0140	.5

*Manufacturers Standard Practices.

FRACTIONS AND DECIMAL EQUIVALENTS

Fraction	Decimal	Fraction	Decimal
$\frac{1}{64}$	.015625	$\frac{33}{64}$	.515625
$\frac{1}{32}$	.03125	$\frac{17}{32}$	.53125
$\frac{3}{64}$	.046875	$\frac{9}{16}$	.5625
$\frac{1}{16}$	.0625	$\frac{5}{8}$	.625
$\frac{5}{64}$	.078125	$\frac{37}{64}$	.578125
$\frac{3}{32}$	.09375	$\frac{19}{32}$	.59375
$\frac{7}{64}$	.109375	$\frac{39}{64}$	.609375
$\frac{1}{8}$	.125	$\frac{5}{8}$	.625
$\frac{9}{64}$	.140625	$\frac{41}{64}$	.640625
$\frac{5}{32}$	.15625	$\frac{21}{32}$	.65625
$\frac{11}{64}$	.171875	$\frac{43}{64}$	.671875
$\frac{3}{16}$	.1875	$\frac{11}{16}$	.6875
$\frac{13}{64}$	.203125	$\frac{45}{64}$	.703125
$\frac{7}{32}$	.21875	$\frac{23}{32}$	.71875
$\frac{15}{64}$	.234375	$\frac{47}{64}$	.734375
$\frac{1}{4}$	.25	$\frac{7}{8}$	.75
$\frac{17}{64}$	.265625	$\frac{49}{64}$	.765625
$\frac{9}{32}$	.28125	$\frac{25}{32}$	.78125
$\frac{19}{64}$	.296875	$\frac{11}{16}$	.796875
$\frac{5}{16}$	.3125	$\frac{53}{64}$	.8125
$\frac{21}{64}$	.328125	$\frac{27}{32}$	.828125
$\frac{11}{32}$	.34375	$\frac{55}{64}$	.84375
$\frac{23}{64}$	.359375	$\frac{57}{64}$	.859375
$\frac{3}{8}$	.375	$\frac{7}{8}$	.875
$\frac{25}{64}$	.390625	$\frac{59}{64}$	.890625
$\frac{13}{32}$	.40625	$\frac{29}{32}$	.90625
$\frac{27}{64}$	.421875	$\frac{59}{64}$	.921875
$\frac{7}{16}$	.4375	$\frac{15}{16}$	.9375
$\frac{29}{64}$	.453125	$\frac{61}{64}$	.953125
$\frac{15}{32}$	.46875	$\frac{31}{32}$	.96875
$\frac{31}{64}$	.484375	$\frac{63}{64}$	.984375
$\frac{1}{2}$	.5		